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Parents For Safe Technology



Key Scientific Research Publications To Know on Wireless and Human Health

People often say, "Where is the evidence".

When people want to see the science -just cut and paste this entire page.
All the blue links are clickable to sources and most here go to the full PDF of the study which you can download.

[The Bioinitiative 2012 Report](#)

A Comprehensive Overview of the Science by International Scientists It is broken down into Chapters on various health effects such as the immune system, neurological problems, gene expression and fertility. [See Chapters Here](#)

See the [Downloadable Color Charts on Baby Monitors, Wifi, Smartmeters and Cell Phones.](#)

Notably, it also has a full [Radiofrequency Radiation Research Summary](#) from 1990 until 2014

An excellent summary is in their [Key Scientific Evidence and Public Health Policy Recommendations](#)

Gandhi OP, Morgan LL, de Salles AA, Han YY, Herberman RB, Davis DL. [Exposure limits: the underestimation of absorbed cell phone radiation, especially in children.](#) Electromagn Biol Med. 2012 Mar; 31(1):34-51.

- The existing cell phone certification process uses a plastic model of the head called the Specific Anthropomorphic Mannequin (SAM), representing the top 10% of U.S. military recruits in 1989 and greatly underestimating the Specific Absorption Rate (SAR) for typical mobile phone users, especially children.
- When electrical properties are considered, a child's head's absorption can be over two times greater, and absorption of the skull's bone marrow can be ten times greater than adults.

Redmayne M. **International policy and advisory response regarding children's exposure to radio frequency electromagnetic fields (RF-EMF).** Electromagn Biol Med. 2015 Jun 19:1-9.

- This is a review of the over 20 countries and municipalities which have issued precautionary advice to the public concerning wireless exposures. "Therefore, minimum exposure of children to RF-EMF is recommended." [Read More About Actions Worldwide here](#)

Igor Yakymenko, Olexandr Tsybulin, Evgeniy Sidorik, Diane Henshel, Olga Kyrylenko, and Sergiy Kyrylenko, **Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation.** Electromagnetic Biology and Medicine. July 7, 2015.

- 93 out of 100 currently available peer-reviewed studies dealing with oxidative effects of low-intensity RFR, confirmed that RFR induces oxidative effects in biological systems.
- [Read More About Immune System Damage Here](#)

Martin L. Pall. **Microwave electromagnetic fields act by activating voltage-gated calcium channels: Why the current international safety standards do not predict biological hazard.** Recent Res. Devel. Mol. Cell Biol. 7(2014).

- "It can be seen from the above that 10 different well-documented microwave EMF effects can be easily explained as being a consequence of EMF VGCC activation: oxidative stress, elevated single and double strand breaks in DNA, therapeutic responses to such EMFs, breakdown of the blood-brain barrier, cancer, melatonin loss, sleep dysfunction, male infertility and female infertility."

Morgan, Miller, Sasco, Davis. **Mobile Phone Radiation Should be Classified as a Probable Human Carcinogen, International Journal of Oncology.** International Journal of Oncology, 2015

- We conclude that radiofrequency fields should be classified as a Group 2A 'probable' human carcinogen under the criteria used by

the International Agency for Research on Cancer (Lyon, France).

- We advise that the as low as reasonable achievable (ALARA) principle be adopted for uses of this technology.

Hardell L, Carlberg M. (2013). [Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones.](#) Rev Environ Health. 28(2-3), 97-106.

- Based on the Hill criteria, glioma and acoustic neuroma should be considered to be caused by RF-EMF emissions from wireless phones and regarded as carcinogenic to humans, classifying it as group 1 according to the IARC classification. Current guidelines for exposure need to be urgently revised."

Aldad TS, Gan G, Gao XB, Taylor HS. (2012). [Fetal Radiofrequency Radiation Exposure From 800-1900 Mhz-Rated Cellular Telephones Affects Neurodevelopment and Behavior in Mice.](#) Scientific Reports. 2, 312.

- Mice that were exposed to cell phone radiation in the prenatal period at "legal levels" were more hyperactive and had reduced memory capacity.
- The behavioral changes were to changes in the development of neurons in the prefrontal cortex region of the brain after exposure.

Jessica A. Adams, Tamara S. Galloway, Debapriya Mondala, Sandro C. Estevesb, Fiona Mathews, [Effect of mobile telephones on sperm quality: A systematic review and meta-analysis,](#) Environment International, Volume 70, September 2014, Pages 106-112

- The results were consistent across experimental in vitro and observational in vivo studies. We conclude that pooled results from in vitro and in vivo studies suggest that mobile phone exposure negatively affects sperm quality. Further study is required to determine the full clinical implications for both sub-fertile men and the general population.

Dasdag et al., [Effects Of 2.4 Ghz Radiofrequency Radiation Emitted From Wi-Fi Equipment On microRna Expression In Brain Tissue.](#) Int J Radiat Biol. 2015 Mar 16:1-26.

- The significant effects on microRNAs observed in this study were found from Wi-Fi exposure that was well below the legal limit.
- CONCLUSION: Long term exposure of 2.4 GHz RF may lead to adverse effects such as neurodegenerative brain diseases originated from the alteration of some miRNAs expression.

Carpenter, D. O. [Human disease resulting from exposure to electromagnetic fields,](#) Reviews on Environmental Health, Volume 28, Issue 4,

- This review summarizes the evidence stating that excessive exposure to magnetic fields from power lines and other sources of electric current increases the risk of development of some cancers and neurodegenerative diseases, and that excessive exposure to RF radiation increases risk of cancer, male infertility, and neurobehavioral abnormalities.

Claudia Roda, Susan Perry. [Mobile phone infrastructure regulation in Europe: Scientific challenges and human rights protection.](#) Environmental Science & Policy, Volume 37, March 2014, Pages 204-214. [Online Abstract](#)

- This published review argues that cell tower placement is a human rights issue for children. "We argue that (1) because protection of children is a high threshold norm in Human Right law and (2) the binding language of the Convention on the Rights of the Child obliges States Parties to provide a higher standard of protection for children than adults, any widespread or systematic form of environmental pollution that poses a long-term threat to a child's rights to life, development or health may constitute an international human rights violation.
- In particular we have explained how the dearth of legislation to regulate the installation of base stations (cell towers) in close

proximity to children's facilities and schools clearly constitutes a human rights concern.

Levitt & Lai, [Biological Effects from Exposure to Electromagnetic Radiation Emitted by Cell Tower Base Stations and Other Antenna Arrays](#), Environmental Reviews, 2010

- Over 100 citations, approximately 80% of which showed biological effects near towers.
- "Both anecdotal reports and some epidemiology studies have found headaches, skin rashes, sleep disturbances, depression, decreased libido, increased rates of suicide, concentration problems, dizziness, memory changes, increased risk of cancer, tremors, and other neurophysiological effects in populations near base stations.

[A review of the ecological effects of radiofrequency electromagnetic fields \(RF-EMF\)](#) Environment International Volume 51, January 2013, Pages 116-140

- A review of ecological studies from original peer-reviewed publications. RF-EMF had a significant effect on birds, insects, other vertebrates, other organisms and plants in 70% of the studies. Development and reproduction of birds and insects are the most strongly affected endpoints.

Alfonso Balmori [Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation](#), Science of The Total Environment, Volumes 518-519, 15 June 2015, Pages 58-60

- The growth of wireless telecommunication technologies causes increased electrosmog. Radio frequency fields in the MHz range disrupt insect and bird orientation. Radio frequency noise interferes with the primary process of magnetoreception. Existing guidelines do not adequately protect wildlife. Further research in this area is urgent.

Excellent Reading

[The Biological Effects of Weak Electromagnetic Fields Problems and Solutions](#)

[Andrew Goldsworthy March 2012](#)

[BEES, BIRDS AND MANKIND Destroying Nature by 'Electrosmog' Ulrich Warnke](#)

[Five Thousand Research studies on the Just Prove it Website](#)

You can search within this site to get your research questions answered.

[EMF Portal](#) This site holds all of the research on EMFs. Stay updated on peer reviewed published research and you also can search within the database for research studies on your health issues.

Research on the Cellular Response to Wireless
and Immune System Impacts

Martin L. Pall. [Microwave electromagnetic fields act by activating voltage-gated calcium channels: Why the current international safety standards do not predict biological hazard.](#) Recent Res. Devel. Mol. Cell Biol. 7(2014).

- "It can be seen from the above that 10 different well-documented microwave EMF effects can be easily explained as being a consequence of EMF VGCC activation: oxidative stress, elevated single and double strand breaks in DNA, therapeutic responses to such EMFs, breakdown of the blood-brain barrier, cancer, melatonin loss, sleep dysfunction, male infertility and female infertility."

Igor Yakymenko, Olexandr Tsybulin, Evgeniy Sidorik, Diane Henshel, Olga Kyrylenko, and Sergiy Kyrylenko, [Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation](#). Electromagnetic Biology and Medicine July 7, 2015.

- 93 out of 100 currently available peer-reviewed studies dealing with oxidative effects of low-intensity RFR, confirmed that RFR induces oxidative effects in biological systems.
- Analysis of the currently available peer-reviewed scientific literature reveals molecular effects induced by low-intensity RFR in living cells; this includes significant activation of key pathways generating reactive oxygen species (ROS), activation of peroxidation, oxidative damage of DNA and changes in the activity of antioxidant enzymes.
- A wide pathogenic potential of the induced ROS and their involvement in cell signaling pathways explains a range of biological/health effects of low-intensity RFR, which include both cancer and non-cancer pathologies.
- The oxidative stress induced by RFR exposure should be recognized as one of the primary mechanisms of the biological activity of this kind of radiation.

Hamzany Y, Feinmesser R, Shpitzer T, et al. [Is Human Saliva an Indicator of the Adverse Health Effects of Using Mobile Phones?](#) Antioxidants and Redox Signaling. 2013

- Significant increase in all salivary oxidative stress indices were seen in the mobile phone users. Salivary flow, total protein, albumin, and amylase activity were decreased in mobile phone users. "These observations lead to the hypothesis that the use of mobile phones may cause oxidative stress and modify salivary function."

Cetin H, Nazıroğlu M, Celik O, Yüksel M, Pastacı N, Ozkaya MO. [Liver antioxidant stores protect the brain from electromagnetic radiation \(900 and 1800 MHz\)-induced oxidative stress in rats during pregnancy and the development of offspring](#). J Matern Fetal Neonatal Med. 2014 Mar 3.

- "EMR could be considered as a cause of oxidative brain and liver injury in growing rats."

Hou Q1, Wang M, Wu S, Ma X, An G, Liu H, Xie F., [Oxidative changes and apoptosis induced by 1800-MHz electromagnetic radiation in NIH/3T3 cells](#). Electromagn Biol Med. 2014 Mar 25.

- Our results showed a significant increase in intracellular ROS levels after EMR exposure. The percentage of late-apoptotic cells in the EMR-exposed group was significantly higher than that in the sham-exposed groups ($p < 0.05$). These results indicate that an 1800-MHz EMR enhances ROS formation and promotes apoptosis in NIH/3T3 cells.

Misa-Agustiño et al. EMF radiation at 2450 MHz (Wi-Fi) triggers changes in the morphology and expression of heat shock proteins and glucocorticoid receptors in rat thymus. Life Sciences.vol. 127:1-11. April 15, 2015.

- In this study, we analyzed cellular stress levels in rat thymus after exposure of the rats to a 2.45 GHz radio frequency using an experimental diathermic model in a GTEM chamber.
- This study describes for the first time changes in the morphology, levels of cellular stress proteins Hsp90 and 70 and glucocorticoid receptors in the rat thymus exposed to a maximum interaction of 2.45 GHz radio frequency to the left leg of the animal in a GTEM chamber.
- Significance Our results indicate that non-ionizing sub-thermal radiation causes changes in the endothelial permeability and vascularization of the thymus, and is a tissue-modulating agent for Hsp90 and GR.

- The increase of glucocorticoid receptors in the cortical thymocytes indicates that radiation constitutes a stimulus for immune response.

Tomruk A1, Guler G, Dincel AS. The influence of 1800 MHz GSM-like signals on hepatic oxidative DNA and lipid damage in nonpregnant, pregnant, and newly born rabbits. *Cell Biochem Biophys*. 2010;56(1):39-47.

- “The whole-body 1800 MHz GSM-like RF radiation exposure may lead to oxidative destruction as being indicators of subsequent reactions that occur to form oxygen toxicity in tissues”

Augner C, Hacker GW, Oberfeld G, Florian M, Hitzl W, Hutter J, Pauser G. Effects of exposure to GSM mobile phone base station signals on salivary cortisol, alpha-amylase, and immunoglobulin A. *Biomed Environ Sci*. 2010 Jun;23(3):199-207. doi: 10.1016/S0895-3988(10)60053-0.

- Increases of cortisol and a higher concentration of alpha-amylase were detected in subjects under various EMF exposure scenarios. RF-EMF in considerably lower field densities than ICNIRP-guidelines may influence certain psychobiological stress markers.

Nazıroğlu M, Yüksel M, Köse SA, Özkaya MO. Recent reports of Wi-Fi and mobile phone-induced radiation on oxidative stress and reproductive signaling pathways in females and males. *J Membr Biol*. 2013 Dec;246(12):869-75. doi: 10.1007/s00232-013-9597-9. Epub 2013 Oct 9.

- Review Paper: “In conclusion, the results of current studies indicate that oxidative stress from exposure to Wi-Fi and mobile phone-induced EMR is a significant mechanism affecting female and male reproductive systems.”

Yakymenko et al., Low intensity radiofrequency radiation: a new oxidant for living cells. *Oxid Antioxid Med Sci* 2014; 3(1):1-3

- A “strong non-thermal character of biological effects of RFR has been documented” and “it is clear that the substantial overproduction of ROS in living cells under low intensity RFR exposure could cause a broad spectrum of health disorders and diseases, including cancer in humans. Undoubtedly, this calls for the further intensive research in the area, as well as to a precautionary approach in routine usage of wireless devices.”